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# **Sandia National Laboratories, California Air Quality Program Annual Report April 2008**



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# **Sandia National Laboratories, California**

## **Air Quality Program**

### **Annual Report**

**April 2008**

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#### **ABSTRACT**

The annual program report provides detailed information about all aspects of the SNL/CA Air Quality Program. It functions as supporting documentation to the SNL/CA Environmental Management System Program Manual. The program report describes the activities undertaken during the past year, and activities planned in future years to implement the Air Quality Program, one of six programs that supports environmental management at SNL/CA.

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# Summary of Document Changes

Significant changes made to the April 2008 edition of the Air Quality Program Annual Report are marked with a left-hand sidebar within the document and are summarized below.

<b>Section</b>	<b>Page</b>	<b>Change</b>
<b>2.2.2</b>	5	Updated discussion regarding status of CARB regulations
<b>3</b>	7	Updated list of program documents and reports generated by the Air Quality Program
<b>6.2.1</b>	14	Described how mobile source emissions will be estimated for 2007 and how certain implemented measures may affect 2007 emissions.
<b>6.2.2</b>	14	Updated Paint Shop VOC Emission section to include results of 2007 paint shop assessment.
<b>6.2.3</b>	15	Updated Spare The Air discussion to include data from 2007.
<b>7.1</b>	16	Updated risk assessment to include Management's increase aversion to violations and occurrences. Also included a new risk for diesel powered vehicles and equipment.
<b>8.1</b>	17	Updated discussion on BAAQMD inspections.
<b>8.2</b>	17	Updated discussion on the Corporate Assessments.
<b>8.4</b>	18	Discussed assessment conducted on Paint Shop's Inventory Database.
<b>9</b>	19	Updated accomplishments to reflect previous year's activities.
<b>10</b>	20	Identified issue regarding costs to satisfy existing and proposed CARB regulations regarding mobile source equipment
<b>11</b>	20	Updated discussion on future air quality trends potentially affecting SNL/CA including proposed amendments to state and local laws and regulations.
<b>12</b>	24-27	Replaced existing Table with Timeline Figure
<b>App A</b>	30	Updated permit owner for diesel generators
<b>App C</b>	33-39	Updated Air Quality Program Risk Assessment
<b>App D</b>	40	Updated Program Self Assessment
<b>App E</b>	41-49	Updated Line Implementation Assessment

# 1 Program Description

Sandia/CA's policy is to minimize the impact of its operations on the environment through responsible management of air emissions. To implement this policy, Sandia/CA complies with all applicable Federal, State and local environmental standards and regulations, submitting applications for permits when required, and operating in compliance with all applicable requirements.

The SNL/CA Air Quality Program's purpose is to obtain and maintain permits/registrations and assist and guide the line organizations in complying with all permit conditions and regulatory requirements. The Air Quality Program assesses the impact of new air quality laws and regulations on SNL/CA operations and develops future plans to maintain compliance. Potential impacts of new and modified air pollution sources are assessed through regulatory analysis, emissions calculations, and, when necessary, risk assessments.

The Air Quality Program is responsible for assessing and protecting air quality at SNL/CA and assisting SNL organizations in complying with applicable environmental laws and regulations, particularly those for air quality permitting and reporting.

Specific responsibilities of the Air Quality Program include:

- Keep SNL/CA organizations, the public, and the DOE apprised of air quality issues
- Obtain and maintain air quality permits and registrations and assist SNL/CA organizations in achieving compliance with all permit requirements
- Assess any applicable potential impacts of new and existing sources
- Develop plans to reduce SNL/CA air emissions and assist with the implementation of such plans.
- Maintain air quality compliance documents and records and ensure that all necessary reports are submitted to the appropriate agencies in a timely manner.

## 1.1 Air Quality Program Scope and Ownership

The applicability and requirements of the SNL/CA Air Quality Program pertain to all site operations that emit, or have the potential to emit, air pollutants. As of March 31, 2008, SNL/CA has 15 permitted emission sources with the Bay Area Air Quality Management District (BAAQMD). There are 17 sources listed as "exempt from permitting" on the BAAQMD Permit to Operate. Appendix A lists the permitted and exempt sources in operation.

The SNL/CA Air Quality Program is developed and managed by the Environmental Management Department (8516). Air Quality Program staff interact regularly with (1) other Environmental Program staff (e.g., Hazardous Materials Management Program, NEPA, etc.), (2) internal customers (e.g., SNL line organizations, Facilities Planning Department, Maintenance Engineering Department, etc.), (3) NNSA/SSO, (4) the BAAQMD (the Permitting Division and the Compliance and Enforcement Division), and (5) the California Air Resources Board.

## 2 Program Drivers

The Federal Clean Air Act was passed in 1967 to protect and enhance the nation's air quality. It provides the statutory basis for regulating air contaminants through a national program to control emissions from motor vehicles and stationary sources. Through the CAA, congress has given authority for air protection to the U.S. EPA, who in turn delegates authority to states which have demonstrated a program to comply with the CAA. In California, the Air Resources Board has further delegated authority to local air districts. The County and regional air pollution control districts were created to assist the CARB in carrying out its mission. The BAAQMD is the regional agency that regulates air quality from stationary industrial sources in the Bay Area.

In the Bay Area, the BAAQMD regulates air emissions from stationary (i.e., nonvehicular) industrial air pollutant sources, and develops air resource strategies (implemented through rules and regulations) to comply with the CAA and to protect public health and welfare. The CARB has retained authority for control of vehicular emissions, develops rules regarding stationary sources which must be adopted and implemented by local districts, and has also developed a number of air toxics programs which are administered by the districts. The EPA has retained some authority for the regulation of sitewide emissions of radionuclides in the Bay Area through the NESHAPS program.

### 2.1 Federal

#### 2.1.1 *National Ambient Air Quality Standards*

The Clean Air Act required the EPA to develop a list of air pollutants from all sources that could harm the public health or the environment. The EPA identified six substances as "criteria pollutants," and subsequently developed National Ambient Air Quality Standards (NAAQSs) for these pollutants to protect public health and the environment. The six criteria pollutants are:

- sulfur dioxide (SO<sub>2</sub>),
- nitrogen dioxide (NO<sub>2</sub>),
- carbon monoxide (CO),
- ozone,
- particulate matter (smaller than 10 microns in diameter), and
- lead.

The EPA program for attainment and maintenance of NAAQSs requires local agencies to develop a comprehensive permitting program. BAAQMD has developed a set of rules governing stationary sources of air pollution that are among the strictest in the U.S.

#### 2.1.2 *National Emission Standards for Hazardous Air Pollutants*

In addition to the regulations for criteria pollutants, there is the EPA's NESHAPS program which prescribes emission limitations for the following substances:

- radionuclides
- beryllium



- mercury
- asbestos
- vinyl chloride
- benzene
- inorganic arsenic
- coke oven emissions.

The NESHAPs standards most relevant to SNL/CA operations include those for asbestos demolition and renovation operations and to a limited extent, radionuclides. While some of the other listed pollutants are used onsite, the regulatory threshold is often quite high or the standard is applicable for only selected industries or uses.

**Asbestos:** Asbestos emissions are controlled under NESHAP 40 CFR Part 61 Subpart M. The SNL/NM Facility Asbestos Implementaiton Team (FAIT) (Facilities ES&H Department, 108411) provides the necessary NESHAP notification prior to the start of any job relating to asbestos. The FAIT also has the responsibility for complying with permit conditions and managing necessary records.

**Radionuclides:** The NESHAP regulations for radionuclide emissions contain a subsection which applies solely to Department of Energy/National Nuclear Security Administration (DOE/NNSA) facilities. This subsection (40 CFR Part 61 Subpart H) establishes radiation protection standards, monitoring requirements, and annual reporting of radionuclide air emissions. To comply with the national emission standards, SNL/CA evaluates individual projects with the potential to release radionuclide emissions to determine the worst-case dose to the public. Additionally, dose calculations are compared to the requirements to determine the need for annual monitoring.

### **2.1.3 Refrigerants**

Based on the requirements of the CAA, EPA has established regulations that effect many aspects of the refrigeration industry. The aspects of 40 CFR Part 82 that are most pertinent to SNL/CA operations are summarized below:

- the prohibition of venting,
- requires service practices that maximize recycling of ozone-depleting compounds during the servicing and disposal of air-conditioning and refrigeration equipment,
- certification of recovery and recycling equipment,
- certification of technicians who perform maintenance, service, repair, or disposal,
- evacuation of air-conditioning and refrigeration equipment to a specific vacuum when opening equipment
- requires owners of equipment with charges >50 pounds to repair leaks in the equipment when those leaks would result in the loss of more than a certain percentage of the equipment's charge over a year.
- Safe disposal requirements ensuring the removal of refrigerants from small appliances that enter the waste stream with the charge intact
- Special hazardous waste rules for refrigerants and refrigerant oils.

### **2.1.4 DOE Orders 450.1 and 430.2**

DOE is revising DOE Order 450.1, Environmental Protection Program, and 430.2, Departmental Energy, Utilities, and Transportation Management. As directed by Executive Order (EO) 13423, the revised DOE orders will include greater emphasis on environmental management systems, sustainable practices, and alternative energy. The revised orders are expected to be released in Spring 2008 and incorporated into the Sandia contract shortly thereafter. Changes to SNL/CA's environmental, transportation, and energy programs will be needed to meet new requirements of the DOE orders.

## **2.2 State**

Requirements for air protection in the state are detailed in the California Health and Safety (H&S) Code and the California Clean Air Act. By Federal law, the state must adopt air quality standards and rules and regulations which are at least as strict as the federal. California has chosen to adopt State Ambient Air Quality Standards (AAQSs) which are more stringent than the Federal standards in many areas. The State AAQSs also include hydrogen sulfide (H<sub>2</sub>S), sulfur acid mists, and visibility-reducing particulates, in addition to the Federally-designated criteria pollutants.

### **2.2.1 CARB Registrations and Certifications**

The CARB has retained authority for control of vehicular emissions, while the regional air pollution control districts (BAAQMD) assist CARB in carrying out its mission. The CARB does not have authority to issue permits directly to stationary sources of air pollution. However, the CARB does have a number of certification/exemption processes which may be viewed by some to be "permitting authority." Pertinent to SNL/CA are (1) the Statewide Portable Equipment Registration Program for portable generators, and (2) Asbestos NESHAP Demolition and Renovation Form.

### **2.2.2 Diesel Particulate Matter Emissions**

In 1998, the CARB identified diesel particulate matter (DPM) as a toxic air contaminant. In response, CARB developed a comprehensive Diesel Risk Reduction Plan with a goal to reduce DPM by 75 percent in 2010 and 85 percent by 2020 from a 2000 baseline. Of significance to SNL/CA are:

- **Cleaner Diesel Fuel:** sulfur levels in diesel fuel sold and distributed in California were lowered to less than 15 parts per million starting in June, 2006.
- **Airborne Toxic Control Measure for Stationary Compression Ignition Engines:** rule approved in 2004 containing new emission and hourly usage limits and fuel and reporting requirements. Initial requirements applicable to SNL/CA went into effect on January 1, 2006.

CARB continues to develop other regulations to support efforts to reduce DPM. Two regulations approved by CARB affect in-use off-road equipment and portable equipment. Another regulation currently being developed would impact on-road in-use heavy-duty diesel vehicles. Information on the proposed regulation is discussed in more detail in Section 11.

### **2.2.3 Air Toxics “Hot Spots”**

The California air toxics regulations do not require additional permits (other than those already required by the BAAQMD). They do, however, require SNL/CA to inventory all routine emissions of air toxics from the site so that the CARB can assess the regional and state-wide risks to public health. The required biennial updates to the inventory are handled through the annual BAAQMD permit renewal process.

### **2.2.4 Climate Change**

On September 27, 2006, California passed a law requiring that CARB monitor and reduce greenhouse gases (GHG). As a result, CARB is in the process of developing regulations and guidelines to reduce GHG including establishing statewide emission caps, reduction strategies, and reporting requirements. More details are provided in Section 10.

## **2.3 Local**

The BAAQMD is responsible for ensuring that the ambient air quality standards are attained and maintained in the San Francisco Bay Area. Their jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and the southern portions of Solano and Sonoma Counties. Among the many activities conducted to meet their clean air goal, the BAAQMD adopts and enforces rules for stationary sources of air pollution that are among the strictest in the U.S. Some elements of these rules applicable to SNL/CA include:

1. Limiting emissions of specific pollutants from sources
2. Curtailing open burning
3. Restricting impacts to visibility
4. Reducing emissions from handling of solvents
5. Limiting organic compound content of coatings and adhesives
6. Restricting types of fuels that can be used in sources
7. Prescribing equipment and operating conditions through a permitting system

Through BAAQMD’s permitting system, permits are issued for stationary sources that may have a significant impact on air quality. Owners or operators of these sources must apply for an Authority to Construct and a Permit to Operate before constructing and operating the source. Depending on the potential emissions from the source, certain emission control equipment or Best Available Control Technology (BACT) may be needed before the permit can be approved. If approved, permits are then issued and specify conditions that the sources must meet to construct and operate the source. These conditions may include limiting hours of operations, restricting total emissions, and maintaining usage records.

Some of these rules have been developed because the BAAQMD has been delegated implementation and enforcement authority for many federal and state requirements. For example, authority for many of the federal NESHAP standards has been transferred to BAAQMD including those related to Asbestos. To satisfy the NESHAP requirements, SNL/CA must notify the BAAQMD for certain demolition or asbestos removal activities (See Section 2.1.2).

Proposed changes that may impact SNL/CA diesel-fueled electric generators are discussed in Section 10.

### 3 Operational Controls

Administrative controls are applied within the Air Quality Program to prevent exceedances and violations. These include Technical Work Documents (Table 1), the Interdisciplinary Team (IDT) review, Usage Log Sheets designed with checks and balances, and the Corporate ES&H Manual.

**Table 1. Air Quality Program Technical Work Documents**

Title	Current Version
OP471707, Operating Procedure for Air Quality Program	Issue D, 12/13/07
OP471799, Refrigerant Storage and Handling Procedure	Issue C, 11/09/06
ES&H Manual, Chapter 17, Air Emissions	Issue J, 02/1/08
SP473544, Standard Operating Procedure for Roof Access	Issue B, 02/16/05
PHS SNL06A00051-004, Air Quality Program Operations at SNL/CA	March 2008
Administrative Procedure for Spare the Air Day	Draft

In addition, a communications array is used to administratively control refueling operations on Spare The Air Days (an EMS Air Quality target, see Section 6.2.3). This array consists of e-mail notifications, banners, signs, and “soft” barriers (see Figure 1) to encourage site personnel to not refuel their gasoline-powered vehicles on Spare The Air Days.



Figure 1. Signage Used to Encourage the Postponement of Refueling Operations

Engineered controls provide a fixed “barrier” to prevent exceedances or violations. For example, the paint shop has state-of-the-art cleaning equipment that not only reduce the VOC emissions to

our atmosphere, but also reduce the risk of violating the strict regulations governing the use of solvents (see Section 6.2.2).

## **4 Documents Produced**

Table 2 identifies the documents produced by the Air Quality Program. The BAAQMD Annual Data Update Form is submitted to the BAAQMD to satisfy permitting requirements and is used by BAAQMD to calculate permit renewal fees. BAAQMD permit applications and CARB Statewide Portable Equipment Registration Program applications are prepared for new or modified processes or equipment identified in the BAAQMD and CARB regulations, which specify what types of process or equipment require a permit application and identify testing and reporting requirements. For example, an annual vapor recovery test on the Gasoline Dispensing Facility (GDF) (Source #32) must be conducted and results submitted to BAAQMD annually. Table 2 also identifies usage logs maintained for various permitted sources on site. The logs are based on data provided by the user of the source and are maintained by the Air Quality Program. These records are kept to satisfy the BAAQMD permit conditions for each source and to ensure allowable permit conditions are not exceeded. The records are also used for the BAAQMD Annual Data Update Form.

**Table 2. Program Documents, Reports, and Logs**

<b>Document</b>	<b>Due Date</b>	<b>Frequency of Distribution</b>	<b>Distribution</b>	<b>Purpose</b>
BAAQMD Annual Data Update Form	Mid April	Annual	BAAQMD	BAAQMD Requirements
BAAQMD Permit Applications	Prior to installing or modifying	As needed: prior to installing or modifying equipment/process	BAAQMD	BAAQMD Requirements
Vapor Recovery Test of Above Ground Gas Tank (Source #32)	January	Annually	BAAQMD	BAAQMD Requirements
Asbestos/Demolition Notification	10 working days prior to start of demolition	Prior to demolition	BAAQMD	BAAQMD Requirements
CARB Statewide Portable Equipment Registration Program Applications	Prior to use of Portable Engine	As needed: when planning to use a new portable engine	CARB	CARB Requirements
B910 Cold Cleaner Usage Log (Source #33)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Maintenance and Facilities Adhesives and Sealant Usage Log (Source #93)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Sitewide Wipe Cleaning Usage Log (Source #95)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B963 Paint Spray Booth Usage Logs (Source #96)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B9151 Emergency Diesel Generator with 390 HP Engine Usage Log (Source #101)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Portable Emergency Diesel Generator with 699 HP Engine Usage Log (Source #102)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Portable Diesel Generator with 96 HP Engine Usage Log (Source #103)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B964 Emergency Diesel Generator with 196 HP Engine Usage Log (Source #104)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B968 Emergency Diesel Generator with 575 HP Engine Usage Log (Source #105)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B9151 Emergency Diesel Generator with 394 HP Engine Usage Log (Source #108)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B906/114 Vapor Degreaser	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements

## **5 Approved Job Descriptions, Qualifications, and Job-Specific Training**

### **5.1 Air Quality Program Job Assignments and Qualifications**

The job assignments in the Air Quality Program include the Air Quality Program Lead, Air Quality Engineer/Specialist, and Air Quality Student Intern. Personnel in each position must have specific qualifications to carry out the applicable duties. In addition, Sandia views training, development, and education as a strategic investment in Sandia's future, and therefore has corporate and job specific training requirements for each assignment. The job assignments and required qualifications and training are described below. Appendix B provides a list of personnel currently supporting each job assignment.

#### **5.1.1 Air Quality Program Lead**

The Air Quality Program Lead is responsible for management and oversight of all program activities and serves as the air quality expert for SNL/CA. Management and oversight duties include, but are not limited to, budgeting, identifying investments needs, task assignment and oversight, contract management, conducting program self assessments, reporting, developing operational controls, and participating in department projects. The Air Quality Program Lead identifies applicable regulatory requirements and directly helps site personnel achieve and maintain compliance. As part of this effort, the Program Lead participates in the ES&H Interdisciplinary Team meetings where SNL/CA personnel present new and modified projects conducted on-site. The Program Lead assists site personnel in obtaining necessary operating permits for processes and equipment and then complying with the permit requirements. This assignment requires regular interaction with Federal and state agencies and monitoring of changes in regulations relevant to the site. Any applicable changes are then communicated to the site by the Program Lead. The Program Lead also prepares for and guides BAAQMD inspections.

At a minimum, the Air Quality Program Lead must hold a Bachelor of Arts or Science Degree in the environmental, science, or engineering fields and have more than 5 years of relevant work experience. The Program Lead must possess program management skills and strong communication skills (oral and written). Additionally, this assignment requires knowledge of California and Bay Area air quality regulations and permitting procedures. The formal training requirements are identified in Table 3.

#### **5.1.2 Air Quality Engineer**

The Air Quality Engineer assists with the day-to-day activities of the Air Quality Program and serves as the back-up for the Air Quality Program Lead. The day-to-day activities include maintaining usage records for on-site sources, preparing Annual Data Update Forms to the BAAQMD, and preparing and reviewing SOPs and reports. When the Program Lead is not available, the Air Quality Engineer attends the ES&H Interdisciplinary Team meetings. The Air Quality Engineer also assists with preparing permit applications and helping SNL/CA personnel

understand the permit compliance requirements. In addition, the Air Quality Engineer provides assistance preparing for BAAQMD inspections.

The minimum qualifications for the Air Quality Engineer include possessing a Bachelors degree in an engineering field, although a Masters degree in the environmental and science fields is also acceptable. Three years of directly related work experience is also necessary. The Air Quality Engineer must have good oral and written communication skills, be competent with Microsoft Word and Excel, and be able to work independently. Desirable skills include familiarity with the California and Bay Area air quality regulations, particularly those relating to internal combustion engines. The formal training requirements are identified in Table 3.

### **5.1.3 Air Quality Student Intern**

The Air Quality Student Intern is responsible for implementing SNL/CA's Spare the Air (STA) Program. Under guidance from the Program Lead, the duties of the Intern include developing STA educational and outreach initiatives for SNL/CA personnel; developing, conducting, and analyzing STA surveys; performing emission calculations; and announcing declared STA days.

At a minimum, the Student Intern must be a sophomore in an undergraduate program and maintain a 3.2 GPA. Although environmental, science, or engineering fields are desirable, other relevant fields of study, such as journalism or communication, may be acceptable. Also, the intern must be competent with word processing and spreadsheets (preferably Microsoft Word and Excel), have experience navigating and searching the Internet, and demonstrate the ability to work independently. The ability to perform light physical work outside in hot weather is also required. The formal training requirements are identified in Table 3.

## **5.2 Specialized Assignments and Certifications**

The EPA requires that HVAC technicians be certified by an approved technician certification program (40 CFR Part 82.161). There are four types of certification:

- Type I maintain, service, or repair small appliances
- Type II maintain, service, repair or dispose of high or very-high pressure appliances
- Type III maintain, service, repair, or dispose of low-pressure appliances
- Universal maintain, service or repair equipment as described in Type I, II, and III.

SNL/CA HVAC technicians will only service appliances for which they have the proper level of certification (e.g. Type I, Type II, Type III, or Universal). EPA does not currently require recertification or continuing education.

**Table 3. Formal Training Matrix**



Training Requirement	Training Method	Air Quality Program Lead	Air Quality Engineer	Air Quality Intern
WRT101 Effective Writing Skills	SNL classroom	X		
ESH100C California Site Specific ES&H Awareness	SNL classroom	X	X	X
ESH100 ES&H Awareness	Online	X	X	X
Visible Emission Evaluation Proficiency	CARB classroom and field	X		
ESH300 Self Assessment	Online	X		
FileMaker Pro Intermediate	Classroom		X	
Maintain GPA of 3.2	Educational Institution			X

## 6 Performance Measures

### 6.1 Primary Performance Measures

The key indicator for the performance and effectiveness of the SNL/CA Air Quality Program is the outcome of periodic regulatory inspections. Although inspections can occur at any time, the BAAQMD typically inspects permitted sources every two years. The inspections are a rigorous and detailed review of permitted equipment and processes vis a vis applicable BAAQMD regulations and permit conditions. Inspections result in a source being declared one of the following: in compliance; in violation; not operating; or dismantled. Table 4 shows the results of BAAQMD inspections occurring over the past 13 years.

**Table 4. Results Of BAAQMD Inspections For Past Thirteen Years**

	1994	1996	1998	2000	2003	2004	2007
Sources Inspected	24	46	54	18	7	26	30
In Compliance	23	39	45	14	6	25	29
Not Operating	1	6	8	4	0	1	1
Dismantled	0	1	1	0	1	0	0
In Violation	0	0	0	0	0	0	0
Violation Rate	0%	0%	0%	0%	0%	0%	0%

A general Environmental Management Department EMS Target is to “Receive no Notices of Violation (NOV) as a result of any external regulatory Agency Audit”. This target is a measure of how well Air Quality is achieving the general Environmental Objective of “Meeting or exceeding all applicable environmental requirements”. The data from Table 4 show that the Air Quality Program is meeting the EMS general objective set for the department.

## 6.2 Secondary Performance Measures

Secondary performance measures for the Air Quality Program are the EMS Air Quality Targets. These targets provide a means by which to measure progress towards meeting the Air Quality EMS Objective of “Minimize air emissions related to operations and transportation, with particular emphasis on Spare The Air Days”. The Air Quality EMS Targets (i.e., performance measures) are discussed below. Over the next several years, progress towards meeting these targets will be assessed which will provide an indication of how well the EMS Objectives are being met.

### 6.2.1 Mobile Source Emissions

The Air Quality Program has an EMS Target of reducing the sitewide mobile source emissions by 10% by the end of 2008. A baseline for mobile source emissions was established using 2004 data.<sup>1</sup> Onsite mobile sources include vehicles, carts, landscaping equipment, and construction and maintenance equipment that are not permanently attached to a stationary foundation.

In order to determine the progress of this emissions reduction effort, an annual follow-up analysis was completed using 2005 activity data (i.e., hours of operation or miles driven). The methodology, calculations, results and recommendations of this 2005 analysis are documented in *2005 Emission Inventory of Mobile Sources – Progress Report* (SNL, 2007). The estimated emissions of reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), and respirable particulate matter (PM<sub>10</sub>) and relative change between the 2004 baseline and 2005 are presented in Table 5.

**Table 5. Comparison of Baseline and 2005 Emissions (tons/yr)**

	ROG			CO			NO <sub>x</sub>			PM <sub>10</sub>		
	baseline	2005	Change	Baseline	2005	Change	baseline	2005	Change	baseline	2005	Change
GSA	0.05	0.03	-41%	0.71	0.46	-35%	0.32	0.18	-44%	0.015	0.011	-27%
Carts	5.3	5.5	+4%	64	66	+3%	1.2	1.2	0%	0.10	0.11	+10%
Landscaping	6.5	6.7	+3%	16	16	0%	0.33	0.33	0%	0.26	0.26	0%
Construction	1.2	1.2	0%	14	14	0%	1.7	1.2	-29%	0.12	0.097	-19%
Total	13.0	13.4	+3%	95	96	+1%	3.6	2.9	-19%	0.50	0.48	-4%

ROG = Reactive Organic Gases (similar to VOC - volatile organic compounds); CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter with a diameter of <10 microns

The expectation was that very little would have changed considering plans to reduce sitewide mobile source emissions were just starting to be implemented. In addition, the activity data for the 2004 baseline and the 2005 analysis are similar because the baseline incorporates some 2005 data (see footnote 1). The one significant change that is seen is the 19% reduction in total NO<sub>x</sub> emissions. This can be largely attributed to the replacement of the 1990 street sweeper with a newer 2005 sweeper. Other reductions (PM<sub>10</sub> by 4%) and increases (ROG by 3% and CO by 1%) are not, at this time, considered to be significant due to (1) the uncertainty and assumptions inherent in the emissions calculations and (2) the fact that the 2004 baseline included some 2005 data.

<sup>1</sup> The 2004 Baseline Emission Inventory of Mobile Sources was completed in December 2005 and was, in part, based on 2005 data because complete 2004 data were not available.

Although the “Total” percentage decreases or increases in ROG, CO and PM<sub>10</sub> emissions may not be of significance, some observations and conclusions can be drawn from the relative numbers:

1. In order to significantly reduce ROG emissions, cart and landscaping usage (age of fleet, technology type, or hours used) must be affected.
2. Overall CO emissions can be most effectively reduced by influencing cart usage.
3. Overall PM<sub>10</sub> emissions can be most effectively reduced by affecting landscaping equipment usage.

Using the same approach as was used for the 2005 estimates, emissions from mobile sources in 2007 will be estimated and compared against the baseline emissions. Some measures implemented last year are expected to be reflected in the 2007 emission estimates. For example, landscapers received new equipment in 2007 and were able to replace old, higher-polluting machines, including two lawnmowers and two leaf blowers. The replacement of the old landscaping equipment with new, cleaner equipment is expected to have an appreciable reduction in overall ROG and PM<sub>10</sub> emissions from the site.

### **6.2.2 Paint Shop VOC Emissions**

Another Air Quality Program EMS Target is to reduce Paint Shop VOC emissions by 25% by the end of 2008, relative to a 2004 baseline. In 2005, the Air Quality Program was instrumental in acquiring two new pieces of cleaning equipment for Sandia’s painting operations:

- A paint-gun cleaner acquired in 2005 provides a closed-loop cleaning process for the spray guns. Although this equipment still uses a solvent for cleaning, the closed-loop design greatly decreases the volatile organic compound (VOC) emissions compared to the hand cleaning process previously employed. A total of <0.25 gallons of solvent evaporated from the use of the gun cleaner in 2007, compared to 10 gallons evaporating from the gun cleaning process in 2004.
- A parts wash-rack acquired in 2005 uses hot pressurized water to clean metal parts prior to painting. This piece of equipment replaces a hand cleaning method that used high VOC solvents. A total of 0.5 gallons of solvent was used for wipe cleaning/surface preparation tasks in 2007, compared to 6.75 gallons evaporated in 2004.

These two pieces of equipment contribute significantly to obtaining the target of reducing VOC emissions by 25%. In fact, total VOC emissions from paint-gun cleaning and parts cleaning have been reduced by about 97%. However, VOCs are also emitted from architectural coating operations. Because very strict BAAQMD limits on coating VOC content already exist, SNL/CA is limited on measures that can be implemented to reduce VOC emissions from the coatings.

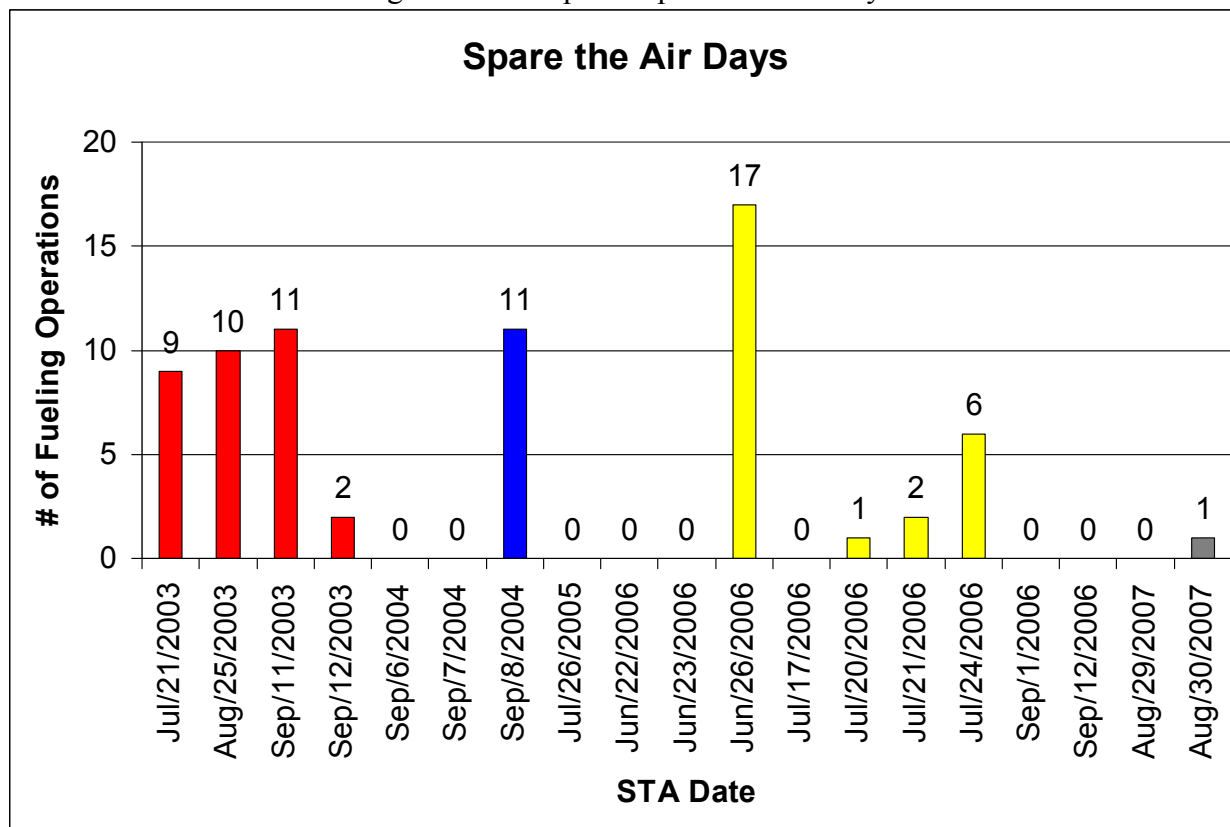
### **6.2.3 Refueling on Spare The Air Days**

The third EMS initiative is aimed at reducing the number of fill-ups at our B963 gasoline tank on Spare the Air Days by 50% from a 2003/2004 baseline. A program was developed and

implemented that encourages site personnel to plan their gasoline fueling activities for either before or after a Spare The Air Day (see Figure 1). The site's workforce appears to be committed to this initiative, as there were no fill-ups at the B963 fuel facility on the first Spare The Air Day of 2007 and just one fill up on the second, down from an average of 7 on a typical work day. Figure 2 shows the number of fill-ups on Spare The Air Days over the last five years.

One anomaly shown in Figure 2 is the 17 fill ups two years ago which fell on a Monday. The prior Thursday and Friday were also Spare The Air Days during which time site personnel successfully deferred all fueling operations. However, personnel were not able to sustain the delay for three consecutive working days and thus had to fill up on that Monday.

Figure 2. Fill-ups on Spare The Air Days



## 7 Quality Assurance

### 7.1 Program Risk Assessment

The Air Quality Program Risk Assessment assesses the risks associated with not meeting programmatic requirements. The risk assessment was updated in February 2008 and identified six potential risks:

Table 6. Air Quality Program Risks

Risk #	Risk	Risk Category
1	Increased Regulation Leading To The Need For A Title V Permit	Low
2	Nuisance Complaint From Local Residents	Low
3	Release To The Atmosphere	Low
4	Operating A Source Without A Permit Or In Violation of Permit Conditions/Limits	High
5	Reduction In Program Funding By 10%	High
6	Increased Regulation of Diesel-Powered Vehicles and Equipment	High

Risk 4 received a risk category ranking of “high” primarily due to the “high” probability for a source to be unknowingly operated without a permit with a “medium” consequence. The “high” probability of occurrence is due to Sandia being a Research and Development laboratory that, by nature, has constantly changing processes, experiments, equipment, etc. This is compounded by the complexity and evolving nature of air regulations themselves. The Air Quality Program has several processes in-place to help reduce the probability of this type of event occurring:

- All projects are required to make presentations to the IDT
- The Air Quality Program receives monthly reports generated by the Chemical Information System (CIS) on the use of toxics
- Air Quality Program personnel are subscribed to numerous List Serves with Regulatory agencies to stay informed of new and changing laws and regulations
- Self-assessments performed by the Air Quality Program and the Line Organizations help to identify non-compliant operations.

The consequence has been increased this year from a “low” level to a “medium” level primarily due to DOE and Sandia Management’s increased aversion to any violations or occurrences, no matter how insignificant.

Risk 5’s overall risk category increased this year from a “medium” to a “high”. This is primarily due to the consequence level being increased from a “low” in previous years to this year’s “medium”. As before, reduced staffing levels would be the primary affect of a 10% reduction in funding. However, a reduced staffing level would be of particular concern over the next several years owing to the fact that the Air Quality Program’s work load will be increasing in order to comply with California’s new regulations governing diesel-powered vehicles and equipment. A 10% reduction in funding leading to a reduced staffing level would definitely increase the risk of SNL/CA’s diesel fleet not meeting the mandated deadlines for retrofitting or retirement.

A new risk was considered this year. Risk 6 considers the risk associated with the increased regulation of diesel-powered vehicles and equipment. The overall risk category determined for this risk was “high” due to the combination of the “high” probability that adequate funds will not be available to retrofit/repower the entire diesel fleet/equipment and the “medium” consequence of diesel vehicles/equipment not being available in a timely matter and increased response times to situations needing large scale equipment.

The complete Air Quality Program Risk Assessment is included as Appendix C.

## 7.2 Maintaining Program Quality

The Air Quality Program strives to ensure that data and documents are managed in a manner that optimizes accuracy, consistency, validity, and retrievability. The following tools and processes are used to maintain a high degree of quality:

- All raw data is reviewed for accuracy and reasonableness when received from source owner
- All data input is reviewed for accuracy after input is complete
- Reports, documents, permit applications and usage logs undergo an internal review and technical edit (note: usage logs are never edited)
- Electronic data and documents are stored on a corporate server, to ensure daily back-ups
- Program staff maintain required and desirable certifications, licenses and training
- The original copies of Program data and documents are submitted to the ES&H Records Center upon completion of a particular project
- Annual Air Quality Program Self Assessment.

## 8 Program Assessments

Assessments are generally performed to (1) measure the ES&H health of an organization, (2) identify, communicate and correct negative performance or compliance trends, (3) assess and improve work processes, and (4) identify findings, violations, observations and noteworthy practices.

### 8.1 BAAQMD Inspections

The BAAQMD routinely “assesses” SNL/CA’s compliance with air district regulations and permit conditions. These particular type of assessments are more commonly referred to as “Inspections”. Although Inspections can occur at any time, they typically occur every two years. BAAQMD last inspected the SNL/CA permitted and exempt sources between January and March of 2007. This last series of inspections is summarized in Section 9. The BAAQMD inspections are a rigorous and detailed review of permitted equipment and processes. Table 4 shows the results of inspections occurring over the past 13 years.

### 8.2 Corporate Assessments

The Air Quality Program is regularly included in Sandia Corporate or Lockheed Martin assessments or audits. Most recently, the Air Quality Program was one element of a corporate audit focusing on environmental permitting conducted in October 2006. Although the Air Quality permitting process was not called out for any specific deficiencies, a general finding of the audit was that a corporate process for managing environmental permit applications, modifications, and compliance does not exist. The entire audit report can be viewed at [Environmental Permitting Process Audit Report](#). To fully address the finding, a corporate policy regarding permitting will need to be developed. However, until then, SNL/CA Environmental Management Department has developed and implemented a procedure (Administrative Procedure 800030) to be used to ensure that environmental permits required by operations at SNL/CA are acquired, renewed, and maintained in accordance with requirements imposed by the regulatory agencies or internal SNL/CA policy.

Lockheed Martin last audited the Air Quality Program in December 1996 as part of an overall ES&H audit.

### **8.3 Program Self-Assessment**

This assessment is conducted to determine the completeness, quality and efficiency of the Air Quality Program's structure and management. The 2007 assessment included a review of technical work documents, program processes, web pages and links, publications and communications to assure that they are streamlined, accurate and current. The Program Self Assessment Document Review Form, included as Appendix D, provides the results of this assessment.

### **8.4 Line Implementation Assessment**

This assessment is performed in order to determine how well the line or site is implementing the requirements of the Air Quality Program or supporting specific program-related objectives and targets. The 2007 Line Implementation Assessment focused on reviewing the accuracy and completeness of the Paint Shop's Inventory Database with respect to the actual information on the coating containers and the BAAQMD regulations. As part of this evaluation, AQ Program personnel visited the paint shop and examined the coating containers and the working documents that the painters use. Containers were spot checked for (1) VOC limits consistent with database/inventory, (2) date of manufacture, and (3) VOC content consistent with limits in Regulation 8 for each paint classification. Obsolete paints were also identified and removed from the database/inventory. The assessment resulted in one Minor Finding, five Observations and one Noteworthy Practice. Appendix E documents the Scope, Process, Results and Improvement Actions of the 2007 Air Quality Line Implementation Assessment.

### **8.5 Environmental Program Representative Assessment**

During 2007, Air Quality did not request assessment support from the Environmental Program Representative.

### **8.6 Division 8000 Line Self-Assessment**

During 2006, the Division 8000 Line Self-Assessment process did not address any air quality issues.

## **9 Accomplishments**

The Air Quality Program accomplished the following activities from April 2007 to March 2008:

### **9.1 Line Assessments**

Continuing the efforts started in 2006, follow-up line assessments were conducted on two additional activities at SNL/CA to ensure emissions from these activities were below the thresholds identified in BAAQMD's Regulation 2, Rule 5 (New Source Review of Toxic Air

Contaminants). Emissions of toxic air contaminants above these thresholds could result in the need for a permit. The activities selected to be closely examined were identified in the 2005 Line Implementation Assessment. Based on the 2005 initial assessment, the following additional activities were evaluated:

- Building 941, Room 1140, operations for the Experimental Mechanics group
- Building 943, Room 1225, operations for Electroplating Laboratory.

The assessments included interviews with users, onsite review of the activities, inventory and usage report review, and emission estimates. Both operations were determined to have emissions that fall below the BAAQMD thresholds.

## **9.2 Trichloroethylene Use**

The single user of trichloroethylene (TCE) for wipe cleaning purposes informed the Air Quality Program that he has discontinued using TCE and currently has no specific plans for future use. However, he would like to keep the TCE as part of his chemical supply. Instead of reporting on a quarterly basis that he is *not* using TCE, a system was developed by which the Air Quality Program would be notified if he resumes using TCE, in which case the quarterly reporting requirements would again be implemented.

## **9.3 Spare The Air**

During the 2007 Spare The Air season, there was just one fill-up over the two Spare The Air Days. This averages to ½ fill-up per Spare The Air Day, compared to an average of 7 on a typical work day. Section 6.2.3 discusses this EMS Air Quality Target in more detail.

## **9.4 Compliance Plan for CARB Mobile Source Rules**

The development of a Compliance Plan has been initiated that addresses SNL/CA's plan for complying with four CARB regulations designed to control PM and NO<sub>x</sub> from diesel fueled vehicles and large spark-ignition engines. The initial step was to develop an inventory of on- and off-road equipment used onsite. This initial step involved reviewing current equipment databases and equipment manuals, conducting field surveys, interviewing onsite personnel, and contacting equipment manufacturers. The Air Quality Program is now using the inventory to develop a plan for complying with the four CARB regulations.

## **9.5 CARB Control Measure for Coatings**

Evaluated impact of CARB's suggested control measure (SCM) for architectural coating on paint shop activities. The SCM are suggested measures that local air districts can use for their own architectural coating rules. The evaluation revealed that if BAAQMD adopted the SCM, some definitions and coating categories may change but the paint shop would be in compliance with the SCM.



## 9.6 Paint Shop Assessment

An assessment of the paint shop was conducted in 2007 to review the accuracy and completeness of the Paint Shop's Inventory Database. As part of the assessment, AQ Program personnel examined the coating containers and documents used by the painters. Details of this assessment are provided in Section 8.4 and Appendix E.

## 10 Issues

CARB has developed several regulations to control PM and NOx from diesel fueled vehicles and equipment (see Section 11 for more information on these regulations). These regulations would require that mobile equipment and vehicles either meet fleet average emission standards or are retrofitted to meet best available control technology standards. Based on preliminary estimates, potential costs (in FY2007 dollars) to satisfy these requirements are listed below:

- Off-road Diesel Vehicles = \$225,000.
- On-road Diesel Vehicles = \$40,000
- Portable Diesel Equipment = \$150,000
- Off-road Spark-ignition equipment (primarily forklifts)= \$21,000

Section 7.1 and Appendix C discuss the risks to SNL/CA operations due to the State's increased regulation of diesel-powered vehicles and equipment.

## 11 Trends

Federal, state, and local agencies continue to develop measures to reduce exposure to toxic air contaminants and criteria pollutants. In addition, particularly at the state level, efforts are underway to reduce emissions of greenhouse gases such as carbon dioxide (CO<sub>2</sub>) and methane. The recent initiatives to reduce toxic air contaminants, criteria pollutants, and greenhouse gases are summarized below:

### 11.1 ATCM for Chrome Plating

The California Air Resources Board (CARB) has amended the Airborne Toxic Control Measure (ATCM) for Chrome Plating and Chromic Acid Anodizing Operations to further control hexavalent chromium emissions, a toxic air contaminant. These amendments affect the chromium plating operations in Building 943 (Source #77) which is inactive at this time. The revised rule requires the use of approved chemical fume suppressants during operation of the process. Other chemical fume suppressants not specifically identified in the ATCM can be used if performance testing demonstrates compliance with emissions limits. Also, the operation of the chrome plating must be done under the direction of a person that has completed the CARB Compliance Assistance Training Course no later than two years after the effective date and every two years thereafter. More information is available at <http://www.arb.ca.gov/toxics/chrome/chrome.htm>.

## 11.2 BAAQMD Rule for Stationary Internal Combustion Engines

To reduce PM<sub>10</sub> and NO<sub>x</sub> emissions in the region, BAAQMD amended their Regulation 9, Rule 8, “Nitrogen Oxides and Carbon Monoxide From Stationary Internal Combustion Engines.” BAAQMD defines a stationary engine as one that remains at a facility for more than one year. Two of the proposed changes that would most affect SNL/CA’s engines are:

- Starting in 2012, limit hours of operation of reliability-related activities to not exceed 50 hours in a calendar year for engines used exclusively for emergency purposes and with an output rating of 50 horsepower or greater (previous version of rule limited such operations to 100 hours).
- Starting in 2012, impose emission limits on non-emergency engines with an output rating of 50 horsepower or greater including those fueled by diesel (emission limits previously did not apply to engines of less than 250 horsepower and engines fueled by diesel).

Five of the six large (>50 hp) generators at SNL/CA can be used only for emergency purposes. Three of the five emergency generators are already limited to 20 hours of operation for reliability-related activities due to the CARB ATCM for Stationary Diesel Engines. Therefore, these three engines already satisfy the revised BAAQMD rule. The other two emergency generators are currently allowed 100 hours of reliability-related operations, therefore the revised rule will reduce their allowed reliability-related activities to 50 hours starting in 2012. The remaining generator that can be used for non-emergency purposes will need to meet the new emission limits in 2012. More information is available at BAAQMD’s website ([BAAQMD.gov/dst/regulations/index](http://BAAQMD.gov/dst/regulations/index)).

## 11.3 CARB Mobile Source Rules

CARB has been developing several regulations to control particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) from diesel fueled vehicles and equipment. Two regulations have already been approved by CARB and affect (1) off-road vehicles and (2) portable equipment. A third regulation currently being developed will impact on-road vehicles. These three regulations are listed below:

- In-Use Off-Road Diesel Vehicles Regulation (CCR Title 13, Section 2449) for engines greater than 25 HP.
- Airborne Toxic Control Measure (ATCM) for Diesel-Fueled Portable Engines (CCR Title 17, Section 9316) for engines greater than 50 HP.
- On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation (proposed) for vehicles with a gross vehicle weight rating of greater than 14,000 lb.

A fourth regulation already promulgated focuses on reducing NO<sub>x</sub> and hydrocarbons (HC) from gasoline powered equipment:

- Off-Road Large Spark-Ignition (LSI) Engine Rule (13 CCR Section 2430, 2431, 2438, 2775) for engines greater than 25 HP.

These regulations require that equipment satisfy either fleet average and/or best available control technology standards as early as 2009 for off-road large spark-ignition equipment (though equipment used for less than 251 hours a year are not required to meet the standards until 2011)

and 2010 for diesel equipment. SNL/CA is currently developing a Compliance Plan to evaluate the actions and costs associated with satisfying these requirements. The Compliance Plan is expected to be completed in July of 2008. Potential actions include retiring old equipment, purchasing new equipment, and retrofitting existing equipment.

## 11.4 Greenhouse Gases

In California, Assembly Bill Number 32 was signed into law on September 27, 2006 and made the CARB responsible for monitoring and reducing GHG. The law requires that CARB do the following:

- By January 1, 2008, establish statewide GHG emission cap for 2020 that is equivalent to 1990 emissions.
- By January 1, 2008, adopt reporting rules for significant sources of GHG.
- By January 1, 2009, adopt a plan to achieve emission reductions from significant GHG sources.
- By January 1, 2011, adopt regulations, to become effective on January 1, 2012, to achieve reductions from significant GHG sources.
- By July 1, 2007, adopt early action measures that can be implemented before January 1, 2010 for significant GHG sources.

Significant sources of GHG emissions are required to submit an emissions inventory to CARB by April 1, 2009. Generally, significant sources are those facilities that emit 25,000 metric tons of CO<sub>2</sub> from stationary combustion sources. Emissions from cars, carts, and mobile equipment do not count toward the 25,000 metric tons limit. Given the relatively limited emission-causing activities associated with SNL/CA compared to other facilities in the state, SNL/CA is not expected to be considered a significant source. Therefore, the reporting and emission reduction requirements are not anticipated to apply to SNL/CA. Emissions will need to be examined more closely to verify SNL/CA does not need to meet the reporting requirements.

In addition, CARB has been developing early action measures to reduce GHG emissions. For many of the measures, details have not yet been determined. Those measures currently being considered that may affect operations at SNL/CA include:

- Limit high Global-Warming Potential (GWP) GHG through enhanced monitoring, enforcement, reporting, and recovery of high-GWP refrigerants such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).
- Limit PFC emissions from the semiconductor industry. However, this measure would likely target industry and not research facilities such as SNL/CA.
- Limit emissions from above ground storage tanks holding gasoline. CARB is developing rules that would reduce emissions from gasoline storage tanks starting in 2013.
- Limit emissions from gasoline dispensing facility hoses.

- Ensure vehicle tire pressures are properly maintained on older vehicles without tire pressure monitoring systems.
- Have local air districts develop permitting requirements that address GHG.

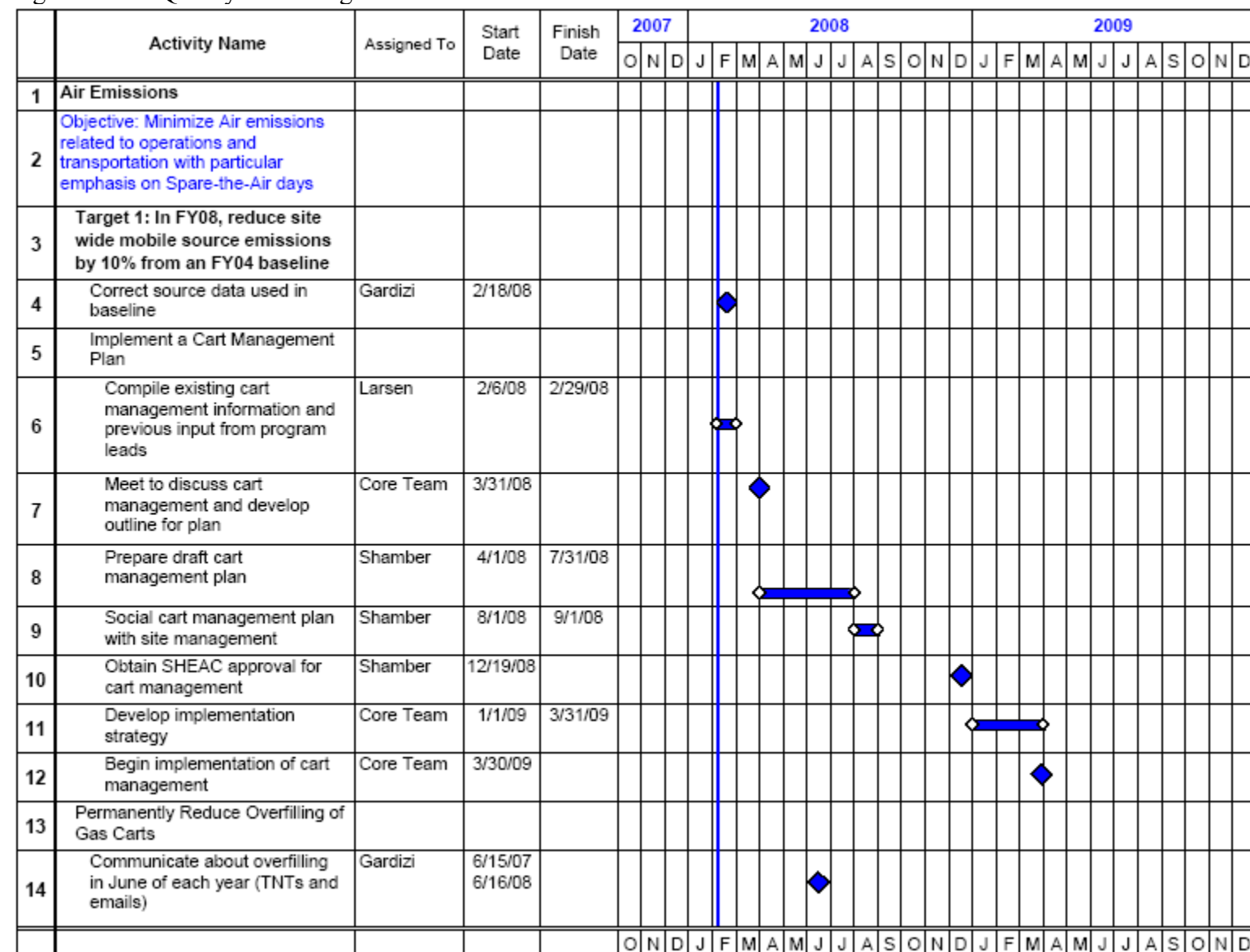
The Air Quality Program will be monitoring future development of these measures to identify applicability and potential impacts to SNL/CA. More information is available at <http://www.arb.ca.gov/cc/cc.htm>.

## 12 Goals and Objectives

The Air Quality Program has developed goals and objectives as part of the SNL/CA EMS Program. There are two primary Air Quality EMS Objectives: (1) reducing air emissions related to operations and transportation in general, and (2) reducing air emissions relating to operations and transportation with particular emphasis on Spare The Air Days. Figure 3 lists the Targets and Actions that have been identified to support these Objectives. These Targets and Actions have both short term (within the next year) and near term (within 3 years) completion dates.

Although there is one Target addressing stationary sources (i.e., the Paint Shop), the primary focus is on reducing the emissions from mobile sources. Most of SNL/CA's stationary sources of emissions are permitted with the BAAQMD, and therefore already have strict control measures applied to them. SNL/CA's mobile sources (cars, trucks, lawn mowers, leaf blowers, garbage truck, bus/van, etc.) are relatively less regulated, and therefore offer the greatest opportunity for emissions reduction.

Figure 3. Air Quality EMS Targets and Actions Timeline



	Activity Name	Assigned To	Start Date	Finish Date	2007			2008												2009											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
15	Monitor gas spills	Gardizi	9/28/07 9/30/08																												
16	Replacement of landscaping equipment with less polluting types																														
17	Survey of maint. equipment	Clevenger	3/26/07	6/29/07																											
18	Develop replacement options	Clevenger	7/2/07	8/10/07																											
19	Implement replacement	Clevenger	8/10/07	10/30/09																											
20	Calculate final emissions reduction achieved through various options	Gardizi	10/30/09	3/31/10																											
21	Target 2: Maintain on site fueling operations on Spare-the-Air days at (an average of) less than or equal to 3 fill ups / STAD																														
22	Increase communications to the workforce																														
23	Give annual presentation on STAD to Maintenance	Gardizi	5/30/08																												
24	Monitor weather projections and alert for the possibility of STAD a week ahead.	AQ Intern Gardizi	6/1/08 6/1/09	9/30/08 9/30/09																											
25	Post banners the day before and day of Spare-the-Air days	AQ intern Gardizi	6/1/06 6/1/07 6/2/08	9/29/06 9/28/07 9/30/08																											
26	Distribute site wide email notification the day before Spare-the-Air days containing specific instructions	AQ intern Gardizi	6/1/06 6/1/07 6/2/08	9/29/06 9/28/07 9/30/08																											
27	Display Spare-the-Air posters at fueling station on Spare-the-Air days	AQ intern Gardizi	6/1/06 6/1/07 6/2/08	9/29/06 9/28/07 9/30/08																											
28	Lock out fueling station on Spare-the-Air days	Clevenger	6/1/06 6/1/07 6/2/08	9/29/06 9/28/07 9/30/08																											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

	Activity Name	Assigned To	Start Date	Finish Date	2007			2008												2009											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
29	Collect and compile data for fill-ups on STAD	Gardizi	9/29/06 9/28/07 9/30/08																												
30	Create AP for Spare-the-air day actions																														
31	Determine if there is a safety policy on siphoning	Shamber	4/30/08																												
32	Determine if there is a safety policy on use of portable gas cans	Shamber	4/30/08																												
33																															
34																															
35	<b>RETIRED TARGETS</b>																														
36	Target met: By the end of FY06, reduce the number of on site fueling operations by 50% on Spare-the-Air days from an FY03/04 baseline (from 6.14 fill ups to 3.07 fill ups on Spare-the-Air days)	Gardizi	9/25/06																												
37	Target re-evaluated and retired without further action: By the end of FY08 reduce paint shop emissions (VOCs) by 25% from FY04 baseline																														
38	Prepare PPOA	Farren/NM	3/1/05	4/1/05																											
39	Research state of the art equip technologies	Painter	4/1/05	5/2/05																											
40	Review equipment specs vis-a-vis air quality regulations	Gardizi	5/2/05	6/1/05																											
41	Prepare and submit purchase order for equip.	Gardizi/Paint	5/30/05	6/13/05																											
42	Equipment delivery and install	Painters	7/1/05	8/1/05																											
43	Inspect installation of equip.	Gardizi /Paint	8/12/05	8/31/05																											
44	Review PPOA	Gardizi	7/29/06	9/29/06																											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

	Activity Name	Assigned To	Start Date	Finish Date	2007			2008												2009											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
45	Determine if additional improvements are warranted for paint shop operations	Gardizi	9/29/06																												
46	Prepare a 2005 emissions estimate for the Paint Shop	Gardizi	8/1/06	10/31/06																											
47	Re-evaluate target and determine next course of action	Gardizi	2/28/07																												
48																															
49	Retired actions																														
50	Implement a Cart Management Plan																														
51	Management meeting to assign lead and supporting team members	Shamber	6/9/06																												
52	Obtain corporate Cart Management Plan and distribute to Core Team for review	Larsen	3/16/07																												
53	Review corporate plan and identify areas needing improvement / update	Core Team	4/30/07																												
54	Complete PPOA of electric vs. gas carts - Sandia wide	NM P2 / Harr	7/2/07	11/2/07																											
55	Complete transportation study for SNL/CA	NM P2 / Harr	7/2/07	4/30/08																											
56	Determine plan of action after review of results of PPOA and transportation study	Shamber	3/3/08	5/30/08																											
57	Collect and compile data on # of spills per year due to overfilling gas carts in prior years	Gardizi	8/1/06	9/22/06																											
58	Investigate modifications to cart gas tanks that will prevent overfilling	Gardizi	9/29/06	10/27/06																											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D



	Activity Name	Assigned To	Start Date	Finish Date	2007			2008												2009											
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
59	Check with Maintenance to determine if gas tanker delivery can be delayed when a STA day is identified.	Gardizi	6/30/06																												
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

## 13 References

SNL, 2005. *2004 Baseline Emission Inventory of Mobile Sources*. Prepared by Richard Shih. December 2005.

SNL, 2007. *2005 Emission Inventory of Mobile Sources Progress Report*. Prepared by Richard Shih. April 2007.

# **Appendix A**

## **Permitted and Exempt Sources**

## Permitted Sources

Permit#	Building	Description	Type of Emission	Permit Owner
32	963	Above Ground Gas Tank	Organics	Dwight Soria
33	910	Degreaser	Organics	Jim Mitchell
55	961	Decontamination Sink	Solvents	Gary Shamber
56	961	Waste Compactor	Particulates	Gary Shamber
60	961	Drum Crusher	Solvents & Particulates	Gary Shamber
77	943	Chromium Plating Ops	Not Operational	John Hachman
93	Sitewide	Maintenance & Facilities Adhesive & Sealant Use	Organics	Dwight Soria
95	Sitewide	Sitewide Wipe Cleaning	Organics	AQ Program
96	963	Paint Spray Booth	Organics	Scott Keith
101	9151	Emergency Diesel Generator	Particulates, Organics NOx, SO2, CO	Marc Padilla
102	Portable	Emergency Diesel Generator	Particulates, Organics NOx, SO2, CO	Marc Padilla
103	Portable	Diesel Generator-200 Hours of Use	Particulates, Organics NOx, SO2, CO	Marc Padilla
104	964	Emergency Diesel Generator	Particulates, Organics NOx, SO2, CO	Marc Padilla
105	968	Emergency Diesel Generator	Particulates, Organics NOx, SO2, CO	Marc Padilla
108	9151	Emergency Diesel Generator	Particulates, Organics NOx, SO2, CO	Marc Padilla

## Exempt Sources

Source #	Building	Process or Equipment	Owner	Status
6	907	Boiler	Russ Kellman	Exempt from Permitting
7	907	Boiler	Russ Kellman	Exempt from Permitting
25	912	Boiler	Johnny Vargas	Exempt from Permitting
26	968	Boiler	Russ Kellman	Exempt from Permitting
27	968	Boiler	Russ Kellman	Exempt from Permitting
28	910	Boiler	Johnny Vargas	Exempt from Permitting
29	910	Boiler	Johnny Vargas	Exempt from Permitting
30	907	Diesel Tank	Bob Clevenger	Exempt from Permitting
40	961	Ultrasonic Cleaner	Gary Shamber	Exempt from Permitting
41	910	Soldering Unit	Jim Mitchell	Exempt from Permitting
61	906/153	Laser Chemistry Lab	Craig Taatjes	Exempt from Permitting
65	906/101	Materials Synthesis Lab	Mark Allendorf	Exempt from Permitting
74	941/1132	Macro Molecular Chemistry Lab	Jim McElhanon/ Tom Zifer	Exempt from Permitting
81	943	Boiler	Mike Replogle	Exempt from Permitting
82	943	Boiler	Mike Replogle	Exempt from Permitting
91	906/Machine Shop	Confined Abrasive Blaster	Ken St. Hilaire	Exempt from Permitting
32100	Sitewide	Fugitive Emissions from Research lab	Air Quality Program	Exempt from Permitting

# **Appendix B**

## **Program Assignments**

<b>Job Assignment</b>	<b>Personnel</b>	<b>Back-Up</b>
<b>Air Quality Program Lead</b>	<b>Leslee Gardizi</b>	<b>Barbara Larsen; Rick Shih</b>
<b>Air Quality Specialist</b>	<b>Rick Shih</b>	<b>None</b>
<b>Air Quality Specialist</b>	<b>Eric Rivero</b>	<b>None</b>
<b>Air Quality Student Intern</b>	<b>Victoria Krammen</b>	<b>TBD</b>

# Appendix C

## Air Quality Program Risk Assessment

### Air Quality Program Risk Assessment (February 2008)

The risk assessment process for the Air Quality Program follows the general steps of

1. Identify the risk
2. Identify the probability of the event occurring
3. Identify the consequence if the event occurs.

The following tables will be used to assign a numeric value to the probabilities and consequence categories.

Likelihood/Probability Of Occurrence Level	Likelihood/Probability Criteria
<b>Very High</b>	• Everything points to this occurring
<b>High</b>	• <i>High chance</i> • <i>Lack of relevant processes or experience contribute to a high chance of occurrence</i>
<b>Medium</b>	• <i>Even chance</i>
<b>Low</b>	• <i>Not much of a chance</i>
<b>Negligible</b>	• Negligible chance this will occur

CONSEQUENCE/SEVERITY LEVEL	CONSEQUENCE/SEVERITY CRITERIA
<b><u>High</u></b>	<ul style="list-style-type: none"> <li>• <i>damage (e.g., ozone depletion, rad soil contamination)</i></li> <li>• <i>Serious environmental impact resulting in recovery actions lasting 5 years or more (e.g., TCE in aquifer)</i></li> <li>• <i>Results in General Emergency (affects both onsite and offsite)</i></li> <li>• <i>Unsatisfactory rating by external regulators or cease and desist order</i></li> <li>• <i>Affects lab leadership, including prime contract</i></li> <li>• <i>Actions, inactions or events that pose the most serious threats to national security interests and/or critical DOE assets, create serious security situations, or could result in deaths in the workforce or general public (i.e., IMI-1) †</i></li> <li>• <i>Actions, inactions or events that pose threats to national security interests and/or critical DOE assets or that potentially create dangerous situations (i.e., IMI-2) †</i></li> <li>• <i>Unallowable costs or fines &gt;\$1M</i></li> <li>• <i>Adverse public opinion – high interest/widespread open public attention or debate (lasting weeks to months)</i></li> <li>• <i>Customer dissatisfaction results in permanent loss of lab customer</i></li> <li>• <i>Catastrophic failure to meet internal requirements</i></li> <li>• <i>Loss of major program within the division (&gt;\$10M)</i></li> </ul>

<b>Medium</b>	<ul style="list-style-type: none"> <li>• Has the potential for adverse impact on Sandia's programmatic performance or the achievement of corporate strategic or operational objectives</li> <li>• Significant injury/illness -fully recoverable with a long recovery time</li> <li>• Significant environmental impact resulting in recovery actions lasting up to 5 years (e.g., major oil spill)</li> <li>• Results in Site/Area Emergency (affects multiple onsite facilities)</li> <li>• One of regulator "hot buttons" (e.g., NNSA, NMED)</li> <li>• Results in increased oversight of limited number of functions</li> <li>• Actions, inactions, or events that pose threats to DOE security interests or that potentially degrade the overall effectiveness of DOE's safeguards and security protection program (i.e., IMI-3) †</li> <li>• Unallowable costs or fines &gt;\$500K and &lt;\$1M</li> <li>• Adverse public opinion – moderate interest, limited PR problems of short duration (days)</li> <li>• Customer dissatisfaction results in partial loss of program</li> <li>• Significant failure to meet internal requirements</li> <li>• Loss of program within division (&gt;\$1M)</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Minimal injury/illness – Fully recoverable with a short recovery time</li> <li>• Minimal environmental impact that can be improved within days</li> <li>• Results in increased short-term oversight</li> <li>• Results in an Operational Emergency (affects a single onsite facility)</li> <li>• Actions, inactions, or events that could pose threats to DOE by adversely impacting the ability of organizations to protect DOE safeguards and security interests (i.e., IMI-4) †</li> <li>• Unallowable costs or fines &lt;\$500K</li> <li>• Adverse public opinion with short-term local negative publicity or embarrassment</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>• Little or no attention, might be discussed as lesson learned</li> </ul>

The risk level will be graded according to the following matrix. Adapted from DOE Order 471.4.

<b>RISK GRADING LEVELS</b>					
		<b>Consequence/Severity</b>			
		<i>Negligible</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>
<b>Likelihood of Occurrence</b>	<i>Very High</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>High</i>
	<i>High</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>High</i>
	<i>Medium</i>	<i>Low</i>	<i>Medium</i>	<i>Medium</i>	<i>High</i>
	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Medium</i>
	<i>Negligible</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>



## **Risks Associated with the Air Quality Program**

- 1. Increased Regulation to require Title V permit**
- 2. Nuisance Complaint filed with BAAQMD**
- 3. Large Quantity Accidental Release to Atmosphere**
- 4. Operating a Source Without a Permit**
- 5. Reduction in Program Funding by 10%**
- 6. Increased Regulation of Diesel-Powered Vehicles and Equipment**

### **1. Increased Regulations that will require a Title V permit**

#### **a. Identification of Risk**

California (and EPA) has been increasing the number of regulated substances (especially toxics). The emission limits for some toxics are quite low. There is the potential that the increased regulations would require the SNL/CA site to obtain a Title V permit (for toxics emission).

#### **b. Probability of Occurrence**

Given the nature of a Research and Development laboratory having many different chemicals but in very small quantities the probability is considered to be **LOW**.

#### **c. Consequence of Occurrence**

A Title V permit would require new reporting requirements. Instrumentation for control or monitoring of the emissions would also be required. Manpower would be expended during the initial permit process, and during renewal cycles. Ongoing increased regulatory oversight could be expected. The consequence is considered **LOW**.

#### **d. Overall Risk Category**

In accordance with the chart above, for a risk with a probability of LOW with a consequence of LOW, the risk category is **LOW**.

### **2. Nuisance Complaint filed with BAAQD**

#### **a. Identification of Risk**

Odors or visible emissions emanating from the SNL/CA site could cause local residents to file a nuisance complaint with the Bay Area Air Quality Management District.

#### **b. Probability of Occurrence**

SNL/CA has had a few instances in the recent past of visible emissions being released from site operations. SNL/CA has also experienced breaks in gas lines, which could possibly cause off-site odor issues. Nuisance odors from chemical releases are considered unlikely due to controls on use and storage. The probability is considered **LOW**.

**c. Consequence of Occurrence**

Response to a nuisance complaint would be handled by cessation of the operation causing the release (for the short term). Long term fixes could involve modifications to operations. Nuisance complaints are taken very seriously by the local regulatory agency and would undoubtedly lead to increased regulatory oversight. The consequence is considered **LOW**.

**d. Overall Risk Category**

In accordance with the chart above, for a risk with a probability of LOW and a consequence of LOW, the risk category is **LOW**.

**3. Large Quantity Accidental Release to Atmosphere**

**a. Identification of Risk**

The risk to be considered here is a release of a contaminant to the atmosphere.

**b. Probability of Occurrence**

Given the large quantity of chemicals used on-site, an accidental release at some point in the lifetime of the facility is considered **MEDIUM**.

**c. Consequence of Occurrence**

Modeling has shown that the worst-case scenario of the release of a toxic gas from a SNL/CA facility has no detrimental impact on off-site persons. Impact to site personnel is not considered here, since that possibility falls under the purview of the Industrial Hygiene and Emergency Management Programs.

Compared to the totality of emissions in the San Francisco Bay Area, or the Livermore Valley, any credible release from SNL/CA is **NEGLIGIBLE**.

**d. Overall Risk Category**

In accordance with the chart above for a risk with a probability of MEDIUM and a consequence of NEGLIGIBLE, the risk category is **LOW**.

**4. Operating a Source Without a Permit or in Violation of Permit Conditions/Limits**

**a. Identification of Risk**

An operation or a piece of equipment that would require a permit from the Bay Area Air Quality Management District could be operating without the knowledge of Air Quality Program personnel, and without a permit. Or, a permitted source could be operating outside the boundaries or limits set forth in the BAAQMD regulations or the Sandia National Laboratories/CA Operating Permit.

### **b. Probability of Occurrence**

There are numerous processes in use at the SNL/CA site to help reduce the likelihood of such an occurrence: (1) all projects are required to make a presentation to the IDT before operations begin; (2) the Air Quality Program receives reports generated by the Chemical Information System on the use of toxics; (3) self-assessments performed by ES&H and line organizations can identify air quality issues; (4) Usage Log Sheets designed with checks and balances; and (5) engineered controls, such as a fixed barrier, when appropriate.

However, given the complexity and dynamic nature of R&D operations, the probability of a source operating without a permit or a permitted source not operating in conformance with applicable requirements is considered to be **HIGH**.

### **c. Consequence of Occurrence**

Consequences of operating without a permit or not operating in accordance with applicable requirements would typically involve a temporary shutdown of the process while a permit is obtained, and potentially a fine (probably <\$5,000) from the regulatory agency, both of relatively low consequence. However, we would also likely see an adverse impact on Sandia's operational performance, an increase in oversight, and a significant failure to meet internal requirements (DOE, EMS, etc.), all of which are of a medium significance. This consequence is therefore graded as **MEDIUM**.

### **d. Overall Risk Category**

In accordance with the chart above for a risk with a probability of HIGH and a consequence of MEDIUM, the risk category is **HIGH**.

## **5. Reduction in Program Funding by 10%**

### **a. Identification of Risk**

The Environmental Management Department, like other organizations with indirect-funded programs, is experiencing flat and possibly reduced budgets over the next several years. Nearly all of the Air Quality Program's expenditures are for labor costs; therefore any reduction in the programmatic budget would affect staffing.

### **b. Probability of Occurrence**

Due to budget constraints that are expected to continue for the next couple of years, it is a **HIGH** probability that funding for the Air Quality Program will be reduced by 10% from FY2008 levels.

### **c. Consequence of Occurrence**

Reduced staffing levels would be the primary affect of a 10% reduction in funding. Air Quality Program activities that are done in order to be a good-corporate citizen or are good business practices would be eliminated or greatly reduced. Such projects are:

activities relating to Spare The Air Days; mobile source emissions inventory; programmatic self assessments; site communications (TNTs, Communicator articles, New Hire Orientation training, organizational outreach, Earth Day activities, etc.), and Employee Commuter issues and initiatives. Every effort would be made to not negatively impact regulatory required activities. However, a reduced staffing level would be of particular concern owing to the fact that the Air Quality Program's work load will be increasing over the next several years in order to comply with California's new regulations governing diesel-powered vehicles and equipment (see Risk 6). A reduced staffing level would definitely increase the risk of SNL/CA's diesel fleet not meeting the mandated deadlines for retrofitting or retirement. Based on the criteria presented in the table, the consequences of a 10% reduction in funding for the Air Quality Program are considered to be **MEDIUM**.

#### **d. Overall Risk Category**

According to the Consequence/Severity Table presented above, a risk with a HIGH probability and a MEDIUM consequence falls into the **HIGH** risk category.

### **6. Increased Regulation of Diesel-Powered Vehicles and Equipment**

#### **a. Identification of Risk**

The California Air Resources Board (CARB) has been developing several regulations to control particulate matter (PM) and oxides of nitrogen (NOx) from diesel fueled vehicles and equipment (forklifts, backhoes, tractors, portable compressors and electric generators  $\geq 50$  hp, trash truck, water truck). A preliminary estimate of the cost for SNL/CA to comply with California's diesel regulations over the next 12 years would be approximately \$600K (in 2007 dollars). If the funds for retrofitting or repowering engines were not available, the vehicles and equipment would need to be retired or transferred to a location outside of California (both of which would also have an undetermined cost).

#### **b. Probability of Occurrence**

During this era of budget cuts, especially for IES operations, there is a **HIGH** likelihood that adequate funds will not be available to retrofit/repower the entire diesel fleet/equipment.

#### **c. Consequence of Occurrence**

Although the Diesel Compliance Plan is just in the initial stages of development, it is anticipated that many of the  $\approx 35$  vehicles/equipment impacted will need to be retired or transferred out-of-state due to (1) lack of funds to retrofit or (2) their inability to meet current emissions limits even with the use of state-of-the-art emissions control equipment. This could pose the situation where a critical piece of equipment for a particular project (e.g., a forklift or a generator) would not be available when needed and could affect programmatic timelines. In addition, depending on which equipment was retired or transferred from the fleet, activities such as sewer work, buffer zone maintenance, garbage disposal, street sweeping, trenching, etc. would need to be

contracted out. Response times to situations needing heavy equipment (e.g., vehicles stranded in off road locations) would be significantly increased. This consequence is graded as **MEDIUM**.

**d. Overall Risk Category**

According to the Consequence/Severity Table presented above, a risk with a HIGH probability and a MEDIUM consequence falls into the **HIGH** risk category.

# Appendix D

## Program Self Assessment

### Program Documents Review

Organization: 8516 Program: Air Quality  
 Date: 12/21/07 Signature: *Desslee Sandizi*  
Program Lead

Document Type	Document Title	Review Complete / Date	Changes Made
Operating Procedures	OP471707 – Operating Procedure for Air Quality Program  Note: Minor changes to department name and file codes were made. Added section 4.7 describing monitoring of relevant legislation.	<input checked="" type="checkbox"/> 12/2007	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	OP471999 – Refrigerant Storage and Handling Procedure  	<input checked="" type="checkbox"/> 12/2007	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	AP47 800011 - Spare The Air Coordinator  Note: This draft AP is ready to be formalized. Complete formalization by February 15, 2008.	<input checked="" type="checkbox"/> 12/2007	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Pending
PHS	PHS SNL06A00051-003 Air Quality Program Operations at SNL/CA  Note: PHS has been reviewed and does not need to be updated	<input checked="" type="checkbox"/> 12/2007	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other Program Documents	Air Quality Source Usage Logs  Note: Minor changes and additions were made to content and organization of Logs Binder. Significant corrections and additions will be made to Paint Shop Inventory Database as a result of the 2007 AQ Program Self-Assessment.	<input checked="" type="checkbox"/> 12/2007	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Pending
Web Pages	Environmental Management Web Page  Note: Reviewed AQ Metrics link. Need to update Emissions Metric with 2005 data. To be completed by January 15, 2008.	<input checked="" type="checkbox"/> 12/2007	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Pending
	Air Quality Program Web Pages  Note: Air Quality Program Web Pages have been reviewed and no changes needed.	<input checked="" type="checkbox"/> 12/2007	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

# **Appendix E**

## **Line Implementation Assessment**



**Self Assessment Report**

**EMS Air Quality Program**

**Assessment Number: 2330**

**Assessment Type: Line**

**Assessment Dates:  
10/15/2007 - 12/21/2007**

**Prepared by:**

GARDIZI, LESLEE P. 12/06/2007  
Org: 08516 Phone: 9252943680

**Section 1 *Executive Summary***

**1.1 Who/What was assessed**

The 2007 Air Quality Program Self-Assessment focused on reviewing the accuracy and completeness of the Paint Shop's Inventory Database with respect to the actual information on the coating containers and the BAAQMD regulations.

**1.2 Overview of Scope**

Evaluate compliance with BAAQMD Reg 8: verifying VOC limits for each paint classification (e.g. industrial maintenance, topcoat, primer, etc.) vis a vis the substrate (e.g., aerospace components, misc metal parts, etc.); spot check dates on containers with regards to "sell through" provisions; identify coatings that are no longer used and remove them from database; spot check VOC content on containers compared with what is listed in database.

**1.3 Why Assessment was performed**

This assessment was performed as the major element of the annual Air Quality Program Self Assessment

**1.4 The Assessment resulted in the following:**

0 Significant Finding(s)  
1 Minor Finding(s)  
5 Observation(s)  
1 Noteworthy Practice(s)  
0 None - Acceptable Practice(s)

**1.5 What happens next**

Scott Keith will prepare "Add to Inventory" forms for all coatings that are currently in his inventory but are not specifically listed in the Inventory Database. The Air Quality Program will perform a regulatory review of the information and enter it into the Inventory Database.

**1.6 Who to contact if there are questions**

Lee Gardizi is the contact for this self-assessment.

**Section 2 *Introduction***



## 2.1 Background

Many different BAAQMD rules apply to our Paint Shop operations. These rules are always going through revisions and all have different phase-in schedules. In addition coatings manufacturers are constantly reformulating their products. These factors make it challenging to keep an accurate database on our coating inventory. Although the Air Quality Program has processes in place to maintain a reliable database, periodically a closer look is warranted to identify any lapses or inaccuracies that may have gone undetected.

## 2.2 Purpose of assessment

To evaluate the accuracy and completeness of the coatings inventory in the Paint Shop (Source #96).

## 2.3 Location(s) Assessed

Site - Area	Building/Structure	Room	Other
California	963	110A	

## 2.4 Planning Documents Reviewed

None

## 2.5 Scope/Criteria

ES&H » Environmental Protection » Air Quality Compliance

ES&H » Environmental Protection » Environmental Management System

## Section 3 Assessment Performance

### 3.1 Assessment Team Members

Name	Org.	Role
GARDIZI, LESLEE P.	08516	Lead Assessor
GARDIZI, LESLEE P.	08516	POC Assessed
CHOI, MABLE	08524	Creator
RIVERO-MONTES, ERIC	08516	Assessor

### 3.2 Personnel Interviewed

Name	Org.	Responsibility	Date	Phone
KEITH, SCOTT S.	085141	Owner - Paint Shop	11/29/2007	294-2523

### 3.3 Documents Reviewed

Document	Number	Description	Revision	Type	Date of Review
Paint Shop Inventory Database		A listing of each coating the Paint Shop has in stock and has been verified that it is compliant.		Database Report	11/14/2007
BAAQMD Regulation 8		The local air district's regulations pertaining to usage and emissions from organic compounds.		Regulation	11/06/2007

Notes:

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### 3.4 Definitions

**Finding:** A statement of fact based on objective evidence documenting an act or condition that does not meet requirements, policies, or procedures required by law, a regulatory agency, DOE, Sandia CPR, or a formally-invoked, site-specific, standard.

**Significant Finding:**

From self-assessments, any Finding that rate High or Medium in risk level (probability of occurrence and consequence criteria per the Enterprise Risk Management CPR) and requires formal causal analysis, corrective action planning, verification, and entry into CATS.

Additionally, any:

- Issues (Findings) from Sandia's Independent Audit and Advisory Services Center;
- Findings from internal, independent assessments (e.g., Weapon Quality Assessment.);
- Issue identified as a corporate issue through the Corporate Issues Management Process.

**Minor Finding:** Any Finding from self-assessments that rate Low in risk level (probability of occurrence and consequence criteria per the Enterprise Risk Management CPR).

**Observation:** A statement of fact based on objective evidence documenting an act or condition that does not violate a requirement but may need improvement.

**Noteworthy Practice:** A process or condition indicating exceptional or innovative policy, practice, or performance.

**None - Acceptable Practice:** A process or condition with no observed problems.

## **Section 4 Significant Findings**

This Assessment resulted in 0 Significant Finding(s).

## **Section 5 Minor Findings**

This Assessment resulted in 1 Minor Finding(s).

### **Minor Finding No. 1**

Eight of the 24 coatings inspected during the assessment had not been entered into the Paint Shop Inventory. Instead the database had a "mirror" entry which was the information for an almost identical coating from a different manufacturer. This does not meet the BAAQMD record keeping requirements which state that the paint shop must maintain a current list of in-use coatings which provides all of the data and information necessary to evaluate compliance. Since a number of coatings were not listed in the inventory database, it cannot be considered "current".

**Trending Code:** Documents and Records

**Result Location(s):**

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

## **Section 6 Observations**

This Assessment resulted in 5 Observation(s).

### Observation No. 1

Six of the 24 containers inspected listed on the label a different VOC than what was entered into the Paint Shop Inventory. However, in all cases the container VOC was within the BAAQMD limits.

**Trending Code:** Documents and Records

#### Result Location(s):

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

### Observation No. 2

In eight cases, the paint classification noted in the Paint Shop Inventory required further details to properly categorize it and identify the appropriate BAAQMD VOC limit. For example, the inventory did not state whether the paint was air-dried or baked.

**Trending Code:** Documents and Records

#### Result Location(s):

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

### Observation No. 3

In four cases, the paint classification indicated on the container label did not match the classification listed in the Paint Shop Inventory. For example: paints that were labeled as "Rust Preventative Coatings" (VOC limit = 400 g/l) were classified in the Inventory as "Industrial Maintenance Coating" (VOC limit = 420 g/l or 250 g/l, depending on date of manufacture); paints that were labeled as "Floor Coatings" (VOC limit = 250 g/l) were classified in the Inventory as "Flat Coatings" (VOC limit = 100 g/l).

**Trending Code:** Documents and Records

#### Result Location(s):

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

### Observation No. 4

The Paint Shop Inventory did not indicate whether motor vehicle substrates were Group I or Group II motor vehicles. The VOC limits for coatings used on Group I and Group II motor vehicles are different, and therefore, it is necessary to distinguish between the two groups in the Inventory.

**Trending Code:** Documents and Records

**Result Location(s):**

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

**Observation No. 5**

Due to corporate buy-outs and mergers, nearly the entire inventory of aerosol paints was not entered into the database accurately. The manufacturer and product ID# listed on the can were not the same as what was listed in the database. This is an issue of having paints on the shelves "mirroring" what is listed in the database. Because the painter has in-depth knowledge of the paints he uses, this "mirroring" most likely has not caused a noncompliance with regulatory VOC limits, but is more an issue of up-to-date documentation.

**Trending Code:** Documents and Records

**Result Location(s):**

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

**Section 7 Noteworthy Practices**

This Assessment resulted in 1 Noteworthy Practice(s).

**Noteworthy Practice No. 1**

The paint containers were well organized and maintained in good condition. There were not any containers that were open to the atmosphere at the time of that assessment.

**Result Location(s):**

Site - Area	Building/Structure	Room	Other
California	963	110A	

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

**Section 8 None - Acceptable Practices**

This Assessment resulted in 0 None - Acceptable Practice(s).

**Section 9 Improvement Action Details**

**Minor Finding No. 1**

Eight of the 24 coatings inspected during the assessment had not been entered into the Paint Shop Inventory. Instead the database had a "mirror" entry which was the information for an almost identical coating from a different manufacturer. This does not meet the BAAQMD record keeping requirements which state that the paint shop must maintain a current list of in-use coatings which provides all of the data and information necessary to evaluate compliance. Since

a number of coatings were not listed in the inventory database, it cannot be considered "current".

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

### Part I - Improvement Action Report (IAR)

**Reference Identification No:** #2330  
**Improvement Action Request No:** #2330-MF1-IA1  
**Issue Date:** TBD

**Type:** Further Action Required  
**Owner Name:** RIVERO-MONTES, ERIC  
**Date:** 12/14/2007

**Assessee Mgr.** Name: GARDIZI, LESLEE P.  
**Organization:** 08516

**Assigned due date:** 12/14/2007  
**Estimated completion date:** 01/31/2008  
**Actual completion date:** TBD

**Comments:** None

#### Improvement action:

AQ Program will obtain completed Add To Inventory forms from Scott Keith. AQ Program will verify information with applicable regulatory requirements/definitions and enter information into Inventory database. AQ Program will confirm with Scott if existing entries should be removed from inventory.

**Was a causal analysis conducted?** no

#### Name of manager or Delegate:

GARDIZI, LESLEE P.

### Part II - Improvement Action Verification (IAV)

#### Actions taken to verify satisfactory completion:

TBD

#### Evaluation of improvement actions (satisfactory completion, not satisfactory / why):

TBD

#### Verified by:

TBD

#### Date of verification:

TBD

### Observation No. 1

Six of the 24 containers inspected listed on the label a different VOC than what was entered into the Paint Shop Inventory. However, in all cases the container VOC was within the BAAQMD limits.

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

### Part I - Improvement Action Report (IAR)

**Reference Identification No:** #2330  
**Improvement Action Request No:** #2330-O1-IA1  
**Issue Date:** TBD

**Type:** Further Action Required  
**Owner Name:** GARDIZI, LESLEE P.  
**Date:** 12/21/2007

**Assessee Mgr.** Name: GARDIZI, LESLEE P.  
**Organization:** 08516

**Assigned due date:** 12/21/2007  
**Estimated completion date:** 03/14/2008  
**Actual completion date:** TBD

**Comments:** None

#### Improvement action:

A procedure will be developed which will outline the steps to be used by the Painters and the Air Quality Program when entering a new coating into the Inventory Database. Specifically addressing this observation, the procedure will specify the order of preference for the VOC information source (container, MSDS, Product Data Sheets, etc).

#### Name of manager or Delegate:

GARDIZI, LESLEE P.

## Part II - Improvement Action Verification (IAV)

### Actions taken to verify satisfactory completion:

TBD

### Evaluation of improvement actions (satisfactory completion, not satisfactory / why):

TBD

Verified by:

TBD

Date of verification:

TBD

### Observation No. 2

In eight cases, the paint classification noted in the Paint Shop Inventory required further details to properly categorize it and identify the appropriate BAAQMD VOC limit. For example, the inventory did not state whether the paint was air-dried or baked.

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

There are no Improvement Actions

### Observation No. 3

In four cases, the paint classification indicated on the container label did not match the classification listed in the Paint Shop Inventory. For example: paints that were labeled as "Rust Preventative Coatings" (VOC limit = 400 g/l) were classified in the Inventory as "Industrial Maintenance Coating" (VOC limit = 420 g/l or 250 g/l, depending on date of manufacture); paints that were labeled as "Floor Coatings" (VOC limit = 250 g/l) were classified in the Inventory as "Flat Coatings" (VOC limit = 100 g/l).

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

There are no Improvement Actions

### Observation No. 4

The Paint Shop Inventory did not indicate whether motor vehicle substrates were Group I or Group II motor vehicles. The VOC limits for coatings used on Group I and Group II motor vehicles are different, and therefore, it is necessary to distinguish between the two groups in the Inventory.

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

There are no Improvement Actions

### Observation No. 5

Due to corporate buy-outs and mergers, nearly the entire inventory of aerosol paints was not entered into the database accurately. The manufacturer and product ID# listed on the can were not the same as what was listed in the database. This is an issue of having paints on the shelves "mirroring" what is listed in the database. Because the painter has in-depth knowledge of the paints he uses, this "mirroring" most likely has not caused a noncompliance with regulatory VOC limits, but is more an issue of up-to-date documentation.

**Result Criteria:** ES&H » Environmental Protection » Air Quality Compliance

## Part I - Improvement Action Report (IAR)

<b>Reference Identification No:</b>	<b>Improvement Action Request No:</b>	<b>Issue Date:</b>
#2330	#2330-O5-IA1	TBD

**Type:**

Further Action  
Required

**Owner**

Name: KEITH,SCOTT S.

Date: 12/21/2007

**Assessee Mgr.**

Name: GARDIZI,LESLEE P.

Organization: 08516

**Assigned due date:**

12/21/2007

**Estimated completion date:**

03/14/2008

**Actual completion date:**

TBD

**Comments:**

None

**Improvement action:**

AQ Program will obtain completed Add To Inventory forms from Scott Keith for all aerosol paints currently in the shelf inventory. AQ will verify information with applicable regulatory requirements and enter information into Inventory Database.

**Name of manager or Delegate:**

GARDIZI, LESLEE P.

**Part II - Improvement Action Verification (IAV)****Actions taken to verify satisfactory completion:**

TBD

**Evaluation of improvement actions (satisfactory completion, not satisfactory / why):**

TBD

**Verified by:**

TBD

**Date of verification:**

TBD